

Site Improvements to Army National Guard Facility Camp Curtis Guild - Reading, MA

Winner - DCAM Innovation Award 2008



Completion Date:
December 6, 2005

Project Size:
Two 2-acre firing ranges

Total Project Cost:
Remedial Design & Construction Oversight - \$786,502
Excavation & Construction - \$1,211,078

Design Firm of Record: TRC Environmental Corporation
Glenn Harkness, P.E., Senior Vice President
Greg Mischel, P.E., Project Manager/Engineer of Record
Thomas Nunno, P.E., LSP, Senior Engineer
Andrew Smyth, LSP
Adam Balogh, P.G., Field Team Leader

Contractor: GZA GeoEnvironmental (Remedial Contractor)
Michael Conway, P.E., LSP
Matthew Smith, P.E.
Daniel Ruth
Adam Swederskas
Gregory Scott
Elaine Donohue
Patricia Dwyer

Contractor: TetraTech EC, Inc. (UXO Contractor)
Brian Corbett

DCAM Team Members:
David B. Perini, Commissioner
Michael L. McKimmey, Deputy Commissioner
Michael J. Lambert, Director of Design and Construction
John O'Donnell, Deputy Director
Phil Schreibman, Project Manager
Kim Plunkett, Project Engineer
Kevin McWeeney, Resident Engineer

User Agency: Massachusetts Army National Guard
Jack Stockhaus, Military Division, Office of the State Quartermaster
Major James Crowley, Massachusetts Army National Guard,
Construction and Facilities Management Office



Description:

The Division of Capital Asset Management (DCAM) was in need of a remedial design plan to construct a new Army National Guard field maintenance facility on two environmentally-compromised former firearms ranges at Camp Curtis Guild in Reading, Massachusetts. Remediation of the site, which contained elevated levels of lead and other heavy metals, entailed on-site treatment of 16,000 tons of contaminated soil and was further complicated by the potential to encounter unexploded ordnance (UXO).

In order to meet the requirements of DCAM and the Army National Guard, the design needed to address the following challenges:

- Reduce the human health and potential ecological risk posed by the contaminated soil without shipping soil off site for disposal.
- Treat and/or isolate the soil on site within a limited footprint and with significant site constraints from wetlands, property boundaries, and historic structures.
- Protect nearby residents from exposure to construction-related dust and the potential for accidental detonation of UXO.
- Perform the design and construction on a fast-track schedule to allow the construction of the maintenance building during the following season.

The Solution:

TRC Environmental Corporation (TRC) designed and conducted a comprehensive field investigation to determine the volume of contaminated soil requiring treatment and prepared detailed specifications for the cleanup. The site characterization included approximately 100 test pits, 13 trenches cut across berms about 20 feet high, collection of about 375 soil samples for laboratory analysis, and infield x-ray fluorescence analysis of almost 1,000 samples and was completed in two weeks during harsh winter weather conditions.

Based on the results of the investigation, TRC designed an excavation, on site stabilization, consolidation, and capping remedy, taking advantage of the proposed maintenance facility and parking area to act as a physical barrier to prevent contact with the stabilized soil. Within eight weeks of project initiation, TRC's final design package went out for public bid, and GZA GeoEnvironmental (GZA) was selected as the remedial contractor.

Prior to excavation, a geophysical survey of the site identified 586 potential UXO anomalies, which could impact the building construction schedule. TRC contracted TetraTech EC, Inc. (TetraTech) who minimized disruption by closely coordinating with GZA and investigated each anomaly just ahead of excavation. In the process, TetraTech found two stokes mortars (a.k.a. three pounders), a one pound shell, and numerous other munitions and explosives of concern.

GZA proposed the use of an innovative, but simple method for introducing stabilizing reagents to the soil. Instead of using complex and labor-intensive mechanical mixing equipment, standard construction equipment was used to mix the proprietary stabilizing reagents into the soil in small batches to ensure thorough mixing and maintain quality assurance of the process. Conformance testing for leachability confirmed that the soil was stabilized in accordance with the specifications. Significant cost savings were realized as a result of the simplified mixing process. TRC's design allowed the contaminated soil to remain on site, reducing DCAM's exposure to future environmental liabilities.

